EX-47030
8S RS232/422/485 Combo PCIe Expansion Module

1. Introduction

Congratulation on your purchasing this high performance PCI Express RS232/422/485 Combo Expansion Module Box. The product includes an expansion module box, a PCI Express Host Adapter and a DVI-like cable. It supports 8 serial ports which can be set in any combinations of RS232, RS422, RS485-2W, or RS485-4W modes. Its 16C950 UART based serial ports (128-byte deep FIFO) are fully 16C550 UART compatible with most of the RS232C, RS422 and RS485 devices available from the market.

Features:

- ✔ Full x1 PCI Express Throughput, 250Mbytes/sec
- ✔ Fully Compliant with PCI Express Base Specifications, Revision 1.1
- ✓ Supports 8 RS232/422/485 Combo Serial Ports
- ✓ RS232 Port Supports 3-wire Signals (TXD, RXD, GND)
- ✓ Supports 4-wire RS422/485 and 2-wire RS485 Modes
- ✓ Supports RS485 Auto Transceiver Turn Around by Unique Featured ATTA™ Hardware
- ✓ 128-byte deep FIFO per transmitter and receivers
- ✓ Each Serial Port Supports 7-pin Screw-Lock-type Terminal Blocks
- ✓ Supports Low Profile Form Factor with Optional Low Profile Bracket
- ✓ Supports Baud Rate up to 921.6Kpbs
- ✓ Optional Model: 2,500Vrms Isolated and 15KV ESD Surge Protection
- ✓ Supports Win2000, XP, 2003, 2008, Vista, Win 7 and Linux

2. Packing List

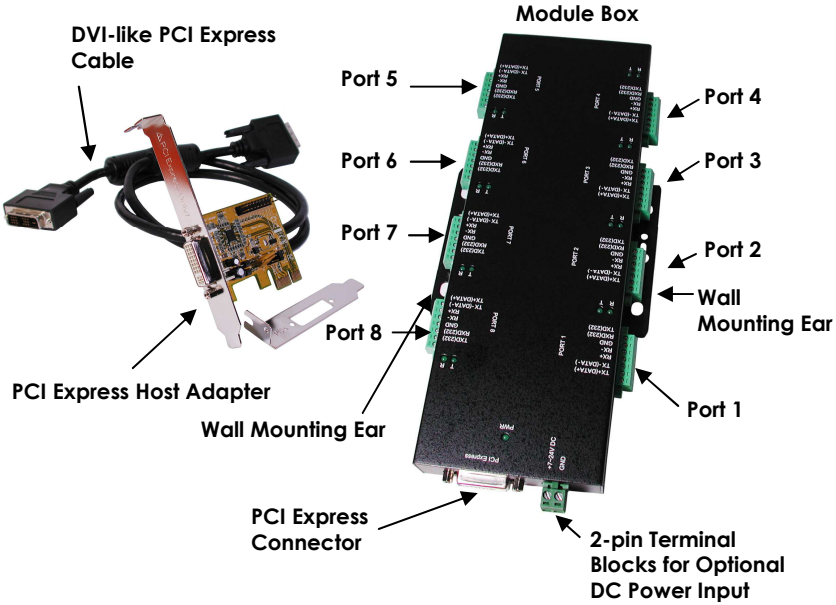
Before installing this product, please make sure the following accessories are well packed in the box :

- ☐ Metal Expansion Module Box 1
- ☐ Add-in PCIe Host Card x 1
- ☐ DVI like Expansion Cable x 1
- ☐ Driver CD × 1
- ☐ This Installation Guide × 1

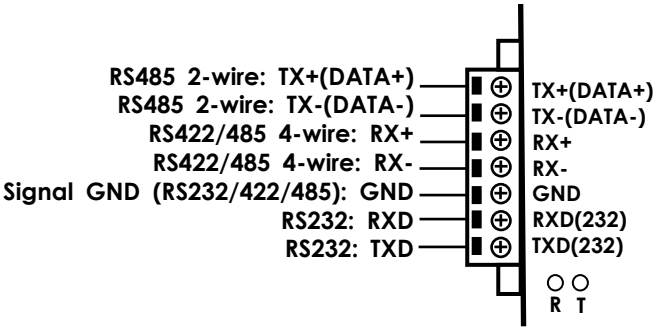
(Mark the check box to help you check it)

3. Connector Layout

- **Connectors:**



- **7-pin Terminal Blocks Pin Assignment for Port 1 ~ 8:**



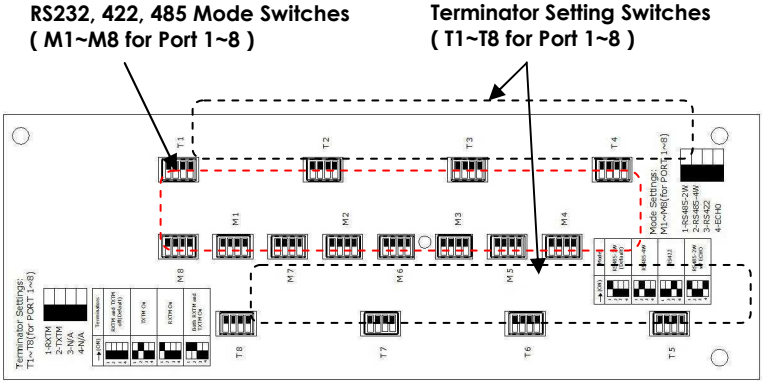
- **LEDs:**

  T (Green): Blinking when sending data

  R (Green): Blinking when receiving data

4. Mode and Terminator Setting Switches

There are 16 4-pin DIP switches on the back side of the box for Port 1 to Port 8. 8 of them are mode switches (marked M1 to M8 for Port 1 to Port 8 respectively) and the other 8 are terminator configuration switches (marked T1 to T8 for Port 1 to Port 8 respectively).

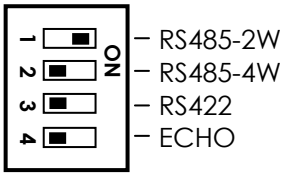


(Bottom View)

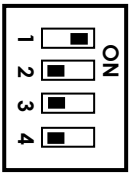
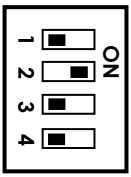
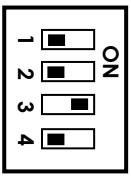
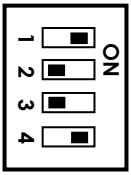
1. Mode Switches (M1 to M8 for Port 1 to Port 8 respectively):

Each M1 to M8 has 4 switch pins which were marked their function names as the following diagram. Pin 1 is to enable RS485 2 wire mode (when ON), pin 2 enables RS485 4 wire mode (ON), pin 3 enables RS422 mode (ON) and pin 4 enables Echo option (ON). Please refer to the following table for more detail.

M1 to M8 DIP Switches:



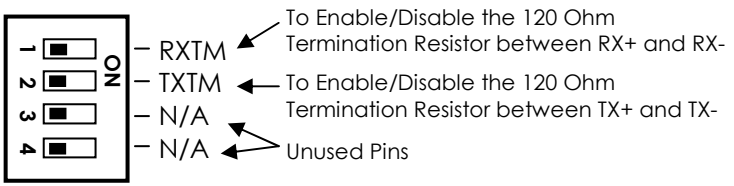
Mode Setting Table:

Switch Settings	Description
	**RS485 2-wire mode (Default)**
	RS485 4-wire mode
	RS422 mode
	Echo mode enabled (**Note:** Only applicable for RS485-2W mode)

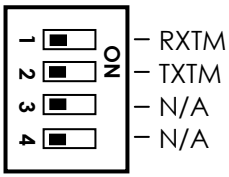
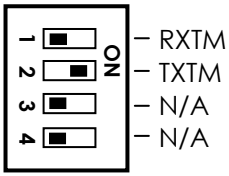
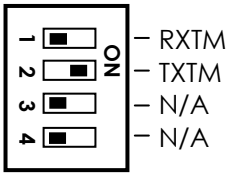
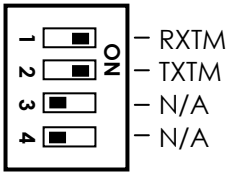
2. Terminator Switches (T1 to T8 for Port 1 to Port 8 respectively):

The design of each RS485 and RS422 port has built-in 2 120 Ohm termination resistors. One is in between RX+ and RX-, controlled by DIP switch pin 1; another is in between TX+ and TX-, controlled by DIP switch pin 2. When the switch pin is set ON, the corresponding terminator resistor is enabled, otherwise it is disabled (floated). Both switch pins were set to OFF by the factory default settings.

T1 to T8 DIP Switches:



Terminator Setting Table:

Switch Settings	Description
	**Both RX+/RX- and TX+/TX- Terminators are Disabled (Default)**
	TX+/TX- Terminator Enabled
	TX+/TX- Terminator Enabled
	Both RX+/RX- and TX+/TX- Terminators are Enabled

5. Installing the Expansion Module Box

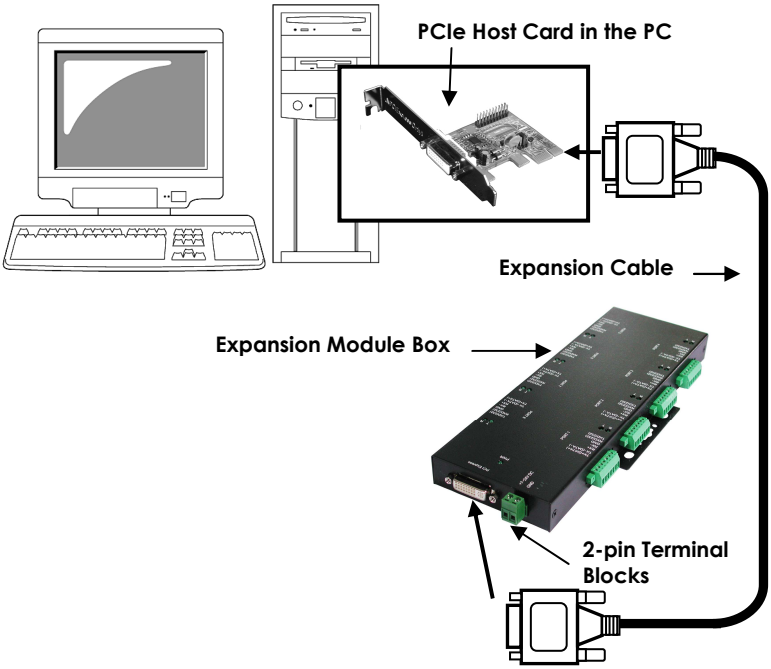
Please note that this product does NOT support hot-plug feature by means of the Expansion Cable. You can NOT connect or disconnect the expansion cable unless you power off your system first.

1. Turn OFF the system power before installation!
2. Remove the chassis cover from your computer
3. Locate an unused PCI Express slot (typically white and smaller) and remove the corresponding slot cover from computer chassis.
4. Plug the PCIe add-in Host Adapter Card to the unused PCI Express expansion slot and attached its card bracket to the computer chassis screw.
5. Put the chassis cover back on the computer.
6. Install one end of the DVI-like Expansion Cable to PCIe add-in card's connector and the other end to the Expansion Box's.

   Waring!! Since the Expansion Cable's connector has the same form factor as the standard DVI connector, however, their signals are different, please do NOT connect the Expansion Cable to neither your LCD monitor nor your Video Graphic cards.

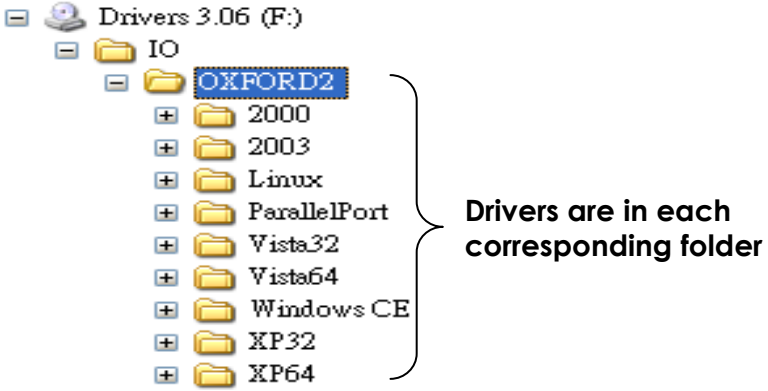
7. The Module Box is powered by the DVI cable from the PCIe Host Adapter by factory default. In this case, you don't have to connect any DC power to the 2-pin terminal blocks on the Module Box. Unless your host PC cannot support enough power for the Module Box through the cable, the 2-pin terminal blocks must be left unconnected in most cases.
8. If you are connecting a RS232 device to the Module Box, then the 3 RS232 pins on the terminal blocks are required. The RS232 mode does not need any extra DIP switch settings, simply connect to the terminal blocks' pin 5, 6 and 7 and left the rest pin 1~4 unconnected. Each port can only work in one mode at the same time. The RS232 mode is not set by DIP switches. Instead, it is automatically supported by the separate connector pins.

9. Turn ON the power of the PC system.
10. Proceed with Software Driver Installation.
11. The connection is explained as the following diagram:



6. Software Installation

The drivers of the RS232/422/485 Combo PCIe Module Box for each Operating System were shipped in the following different folders on the driver CD:

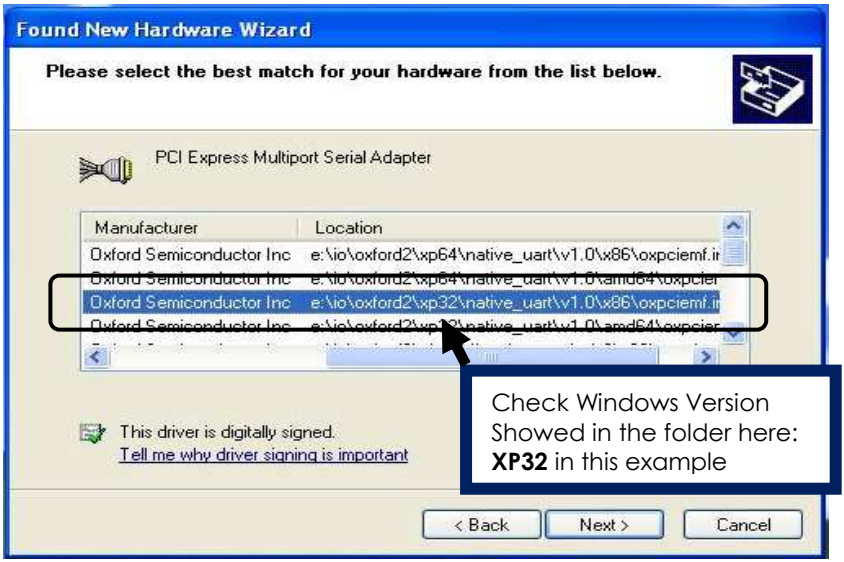


When the Windows detect the PCIe serial ports, it will invoke its Installation Wizard:

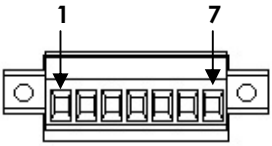
Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission).
Read our privacy policy
Can Windows connect to Windows Update to search for software?
Yes, this time only
Yes, now and every time I connect a device
No, not this time
Click Next to continue.
< Back
Next >
Cancel

Note: For Windows 2000 installation, we recommend you to choose **"Install from a list or specific location (Advanced)"** from the following menu, then browse to the correct driver location (\IO\OXFORD2\2000\...) for Windows 2000. It will prevent from the Windows 2000 searching wrong drivers.

Found New Hardware Wizard
This wizard helps you install software for:
PCI Serial Port
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel


Found New Hardware Wizard
Please select the best match for your hardware from the list below.
PCI Express Multiport Serial Adapter
Manufacturer
Location
Oxford Semiconductor Inc
e:\io\oxford2\xp64\native_uart\v1.0\x86\oxpciemf.in
Oxford Semiconductor Inc
e:\io\oxford2\xp32\native_uart\v1.0\x86\oxpciemf.in
This driver is digitally signed.
Tell me why driver signing is important
Check Windows Version Showed in the folder here: XP32 in this example
< Back
Next >
Cancel

6. Terminal Blocks Pin Assignments



Pin No.	Signal Name	Support Modes
1	TX+ (DATA+)	RS485 2-wire, RS485 4-wire, RS422
2	TX- (DATA-)	RS485 2-wire, RS485 4-wire, RS422
3	RX+	RS485 4-wire, RS422
4	RX-	RS485 4-wire, RS422
5	GND	RS485 2-wire, RS485 4-wire, RS422 and RS232
6	RXD	RS232
7	TXD	RS232

7. Specifications

Type	Specifications
Connectors	Host: DVI (24+5 pin)
	Devices: 7-pin 3.5mm Terminal Blocks x 8
Cable	DVI 24+1 type Cable
Bus Interface	1-lane PCI Express
Number of Ports	8
RS232 Signals	TXD, RXD, GND
RS485 2-wire mode	DATA+, DATA-, GND
RS485 4-wire and RS422 modes	TX+, TX-, RX+, RX-, GND
Baud Rate	110 bps to 921.6Kbps
Data Bits	5,6,7,8,9
Stop Bits	1, 1.5, 2
I/O address/IRQ	Plug-and-Play (various)
Parity	None, Even, Odd, 1, 0
Operating Temperature	0 to 55°C(32 to 132°F)
Operating Humidity	5 to 95% RH
Storage Temperature	-20 to 85°C (-4 to 185°F)

8. Mechanical Drawing